

ATTORNEY DOCKET NO.: 05015.0365U1
App. Serial No.: 09/662,965

IN THE CLAIMS

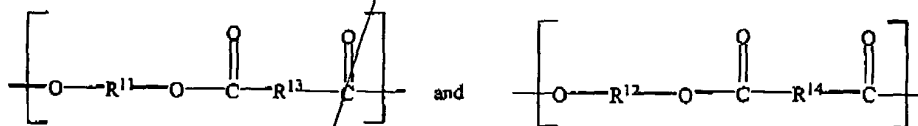
Please amend claims 1, 7, 10, 22 and 24 as follows:

1. (Twice Amended) A method for preparing an article from a biodegradable polymer composition wherein the method comprises:

- a. introducing a phenol-containing compound comprising terpene-phenol resin into a biodegradable polymer or biodegradable polymer composition in an amount sufficient to slow the degradation rate of the biodegradable polymer or biodegradable polymer composition; and
- b. mixing the phenol-containing compound with the biodegradable polymer or biodegradable polymer composition;

wherein the biodegradable polymer or biodegradable polymer composition comprises one or more of:

1. an aliphatic-aromatic copolyester having repeat units of the following structures:



wherein

- (i) R^{11} and R^{12} are the same or different, and are residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 2,2-dimethyl-1,3-propanediol, 1,3-butanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 2,2,4-trimethyl-1,6-hexanediol, thiodiethanol, 1,3-cyclohexanedimethanol, 1,4-

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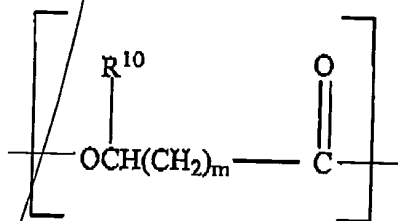
cyclohexanedimethanol, 2,2,4,4-tetramethyl-1,3-cyclobutanediol, triethylene glycol, or tetraethylene glycol;

(ii) R^{11} and R^{12} are 100% of the diol components in the copolyester;

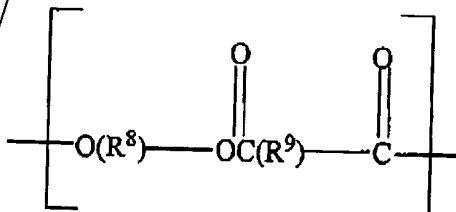
(iii) R^{13} is absent or is selected from one or more of the groups consisting of $C_1 - C_{12}$ alkylene or oxyalkylene; $C_1 - C_{12}$ alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, $C_6 - C_{10}$ aryl, and $C_1 - C_4$ alkoxy; $C_5 - C_{10}$ cycloalkylene; and $C_5 - C_{10}$ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, $C_6 - C_{10}$ aryl, and $C_1 - C_4$ alkoxy; and

(iv) R^{14} is selected from one or more of the groups consisting of $C_6 - C_{10}$ aryl, and $C_6 - C_{10}$ aryl substituted with one to four substituents independently selected from the group consisting of halo, $C_1 - C_4$ alkyl, and $C_1 - C_4$ alkoxy;

2. an aliphatic polyester having repeat units of one or more of the following structures:



or



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wherein m is an integer of from 0 to 10, and R¹⁰ is selected from the group consisting of hydrogen; C₁-C₁₂ alkyl; C₁-C₁₂ alkyl substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; C₅-C₁₀ cycloalkyl; and C₅-C₁₀ cycloalkyl substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy,

wherein R⁸ is selected from the group consisting of C₂-C₁₂ alkylene or C₂-C₁₂ oxyalkylene; C₂-C₁₂ alkylene or C₂-C₁₂ oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; C₅-C₁₀ cycloalkylene; C₅-C₁₀ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy, and

wherein R⁹ is absent or is selected from one or more of the group consisting of C₁-C₁₂ alkylene or oxyalkylene; C₁-C₁₂ alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; C₅-C₁₀ cycloalkylene; and C₅-C₁₀ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; and

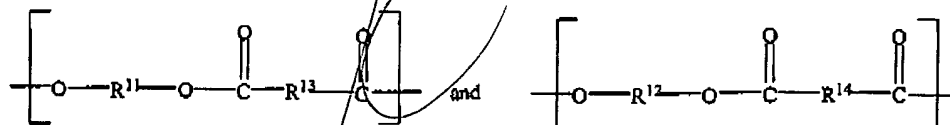
3) a C₁-C₁₀ cellulose ester having a DS equal to or less than about 2.5; and

c. forming the biodegradable polymer composition into an article, wherein the article comprises: a film, a bottle, a blow molded article, an injection molded article or a container.

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- B²
7. (Twice Amended) The method of claim 1 wherein the biodegradable polymer or biodegradable polymer composition comprises the aliphatic-aromatic copolyester and wherein R¹¹ and R¹² are the same or different, and are selected from the group consisting of residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 1,3-butanediol, and 1,4-butanediol, R¹³ is selected from the group consisting of malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, 2,2-dimethyl glutaric acid, diglycolic acid, and an ester forming derivative thereof, and R¹⁴ is selected from the group consisting of one or more of 1,4-terephthalic acid, 1,3-terephthalic acid, 2,6-naphthoic acid, 1,5-naphthoic acid, and an ester forming derivative thereof.

- B³
10. (Twice Amended) A method for preparing an article from a biodegradable polymer or polymer composition, wherein the method comprises:
- (a) introducing a phenol-containing compound into a biodegradable polymer or polymer composition in an amount sufficient to slow the degradation rate of the biodegradable polymer or polymer composition; and
 - (b) mixing the phenol-containing compound with the biodegradable polymer or polymer composition, wherein the biodegradable polymer comprises one or more of the following:
 1. an aliphatic-aromatic copolyester having repeat units of the following structures:



wherein

- (i) R¹¹ and R¹² are the same or different, and are residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 2,2-dimethyl-1,3-propanediol, 1,3-butanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 2,2,4-trimethyl-1,6-hexanediol,

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thiodiethanol, 1,3-cyclohexanedimethanol, 1,4-cyclohexanedimethanol, 2,2,4,4-tetramethyl-1,3-cyclobutanediol, triethylene glycol, or tetraethylene glycol;

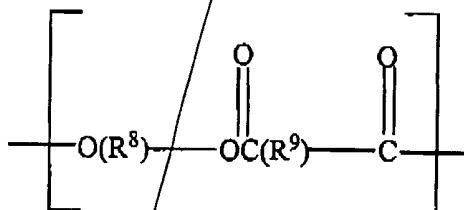
(ii) R^{11} and R^{12} are 100% of the diol components in the copolyester;

(iii) R^{13} is absent or is selected from one or more of the groups consisting of $C_1 - C_{12}$ alkylene or oxyalkylene; $C_1 - C_{12}$ alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, $C_6 - C_{10}$ aryl, and $C_1 - C_4$ alkoxy; $C_5 - C_{10}$ cycloalkylene; and $C_5 - C_{10}$ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, $C_6 - C_{10}$ aryl, and $C_1 - C_4$ alkoxy; and

(iv) R^{14} is selected from one or more of the groups consisting of $C_6 - C_{10}$ aryl, and $C_6 - C_{10}$ aryl substituted with one to four substituents independently selected from the group consisting of halo, $C_1 - C_4$ alkyl, and $C_1 - C_4$ alkoxy;

B3

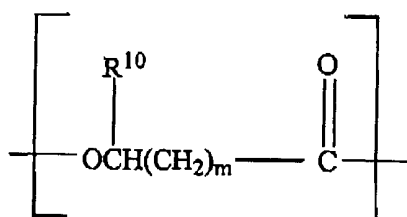
2) an aliphatic polyester having repeat units of one or more of the following structures:



or

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wherein m is an integer of from 0 to 10, and R^{10} is selected from the group consisting of hydrogen; $\text{C}_1\text{-C}_{12}$ alkyl; $\text{C}_1\text{-C}_{12}$ alkyl substituted with one to four substituents independently selected from the group consisting of halo, $\text{C}_6\text{-C}_{10}$ aryl, and $\text{C}_1\text{-C}_4$ alkoxy; $\text{C}_5\text{-C}_{10}$ cycloalkyl; and $\text{C}_5\text{-C}_{10}$ cycloalkyl substituted with one to four substituents independently selected from the group consisting of halo, $\text{C}_6\text{-C}_{10}$ aryl, and $\text{C}_1\text{-C}_4$ alkoxy,

wherein R^8 is selected from the group consisting of $\text{C}_2\text{-C}_{12}$ alkylene or $\text{C}_2\text{-C}_{12}$ oxyalkylene; $\text{C}_2\text{-C}_{12}$ alkylene or $\text{C}_2\text{-C}_{12}$ oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, $\text{C}_6\text{-C}_{10}$ aryl, and $\text{C}_1\text{-C}_4$ alkoxy; $\text{C}_5\text{-C}_{10}$ cycloalkylene; $\text{C}_5\text{-C}_{10}$ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, $\text{C}_6\text{-C}_{10}$ aryl, and $\text{C}_1\text{-C}_4$ alkoxy, and

wherein R^9 is absent or is selected from one or more of the group consisting of $\text{C}_1\text{-C}_{12}$ alkylene or oxyalkylene; $\text{C}_1\text{-C}_{12}$ alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, $\text{C}_6\text{-C}_{10}$ aryl, and $\text{C}_1\text{-C}_4$ alkoxy; $\text{C}_5\text{-C}_{10}$ cycloalkylene; and $\text{C}_5\text{-C}_{10}$ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, $\text{C}_6\text{-C}_{10}$ aryl, and $\text{C}_1\text{-C}_4$ alkoxy; and

3) $\text{C}_1\text{-C}_{10}$ cellulose ester having a DS equal to or less than about 2.5; and

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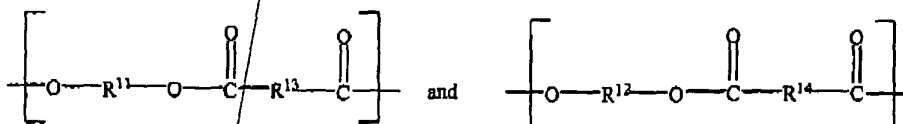
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B3 (c) forming the biodegradable polymer composition into an article, wherein the article comprises: a film, a bottle, a blow molded article, an injection molded article or a container.

22. (Twice Amended) A biodegradable polymer composition for making an article comprising a film, a bottle, a blow molded article, an injection molded article or a container, wherein the biodegradable polymer or biodegradable polymer-second material composition comprises:

- a. a phenol-containing compound comprising terpene-phenol resin incorporated in the biodegradable polymer or biodegradable polymer-second material composition, the phenol-containing compound being present at an amount sufficient to slow the degradation rate of the biodegradable polymer or biodegradable polymer second-material composition; and
- b. a biodegradable polymer or biodegradable polymer-second material composition comprising one or more of the following:

1. an aliphatic-aromatic copolyester having repeat units of the following structures:



wherein

- (i) R^{11} and R^{12} are the same or different, and are residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 2,2-dimethyl-1,3-propanediol, 1,3-butanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 2,2,4-trimethyl-1,6-hexanediol, thiodiethanol, 1,3-cyclohexanedimethanol, 1,4-

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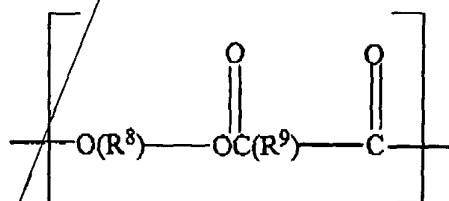
cyclohexanedimethanol, 2,2,4,4-tetramethyl-1,3-cyclobutanediol, triethylene glycol, or tetraethylene glycol;

(ii) R^{11} and R^{12} are 100% of the diol components in the copolyester;

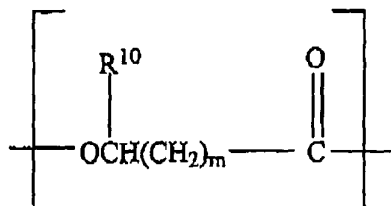
(iii) R^{13} is absent or is selected from one or more of the groups consisting of $C_1 - C_{12}$ alkylene or oxyalkylene; $C_1 - C_{12}$ alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, $C_6 - C_{10}$ aryl, and $C_1 - C_4$ alkoxy; $C_5 - C_{10}$ cycloalkylene; and $C_5 - C_{10}$ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, $C_6 - C_{10}$ aryl, and $C_1 - C_4$ alkoxy; and

(iv) R^{14} is selected from one or more of the groups consisting of $C_6 - C_{10}$ aryl, and $C_6 - C_{10}$ aryl substituted with one to four substituents independently selected from the group consisting of halo, $C_1 - C_4$ alkyl, and $C_1 - C_4$ alkoxy;

- 2) an aliphatic polyester having repeat units of one or more of the following structures:



or



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wherein m is an integer of from 0 to 10, and R¹⁰ is selected from the group consisting of hydrogen; C₁-C₁₂ alkyl; C₁-C₁₂ alkyl substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; C₅-C₁₀ cycloalkyl; and C₅-C₁₀ cycloalkyl substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy,

wherein R⁸ is selected from the group consisting of C₂-C₁₂ alkylene or C₂-C₁₂ oxyalkylene; C₂-C₁₂ alkylene or C₂-C₁₂ oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; C₅-C₁₀ cycloalkylene; C₅-C₁₀ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy, and

wherein R⁹ is absent or is selected from one or more of the group consisting of C₁-C₁₂ alkylene or oxyalkylene; C₁-C₁₂ alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; C₅-C₁₀ cycloalkylene; and C₅-C₁₀ cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C₆-C₁₀ aryl, and C₁-C₄ alkoxy; and

3) C₁-C₁₀ cellulose ester having a DS equal to or less than about 2.5.

24. (Once amended) The biodegradable polymer composition of claim 23 wherein the biodegradable polymer or biodegradable polymer-second material composition comprises the aliphatic-aromatic copolyester and wherein R¹¹ and R¹² are the same or different, and are selected from the group consisting of residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 1,3-butanediol, and 1,4-butanediol, R¹³ is selected from the group consisting of malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, 2,2-dimethyl glutaric acid, diglycolic acid, and